1993

The Longitudinal Effects of Perceptions of Pubertal Timing and Relationship with Parents on Eating Problems in Adolescent Girls

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With one exception, the research on eating problems has been cross-sectional. There is a need for longitudinal research to learn about the precursors of these problems. This study examined both cross-sectionally and longitudinally the influence of perceptions of timing of pubertal development and experience with parents on the development of eating problems in adolescent girls. The sample consisted of girls who were randomly selected from two suburban communities near Chicago--one middle class and the other working class-- and were predominantly Caucasian. They were studied originally when in the 5th to 9th grades (N=240) and again 2 years later (N=177). The adolescents reported on their daily experiences according to the Experience Sampling Method (ESM). They carried pagers for one week, and completed self-report forms when signaled by the pagers. Results showed that feelings of closeness to and positive interactions with both parents predicted to healthier eating scores concurrently. In addition, girls' feelings of closeness to their fathers was a significant predictor of eating scores 2 years later. Finally, interactions of perceptions of timing of pubertal development and experience with parents were important for understanding eating scores concurrently.

THE LONGITUDINAL EFFECTS OF PERCEPTIONS OF PUBERTAL TIMING AND RELATIONSHIP WITH PARENTS ON EATING PROBLEMS IN ADOLESCENT GIRLS

by

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A Thesis Submitted to the Faculty of the Graduate School of Loyola University Chicago in Partial Fulfillment of the Requirements for the Degree of Master of Arts

May, 1993

ACKNOWLEDGMENTS

I would like to thank the members of my committee, Dr. Maryse Richards and Dr. Joseph Durlak, for their assistance with and support of this research. I also wish to thank Dr. Maryse Richards and Dr. Reed Larson for the opportunity to learn more about adolescence by participating in their research project. Finally, I want to thank my family for their ongoing love and support.

This study was supported by NIMH grant number MH38324, "Stress in Daily Life During Adolescence", awarded to Reed Larson and Michael Reese Hospital.

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CHAPTER 1
INTRODUCTION

Previous research has indicated that both pubertal development and troubled family relationships are associated with the development of eating problems. As girls enter puberty and experience its accompanying "fat spurt", they tend to feel less positively about their bodies (Attie & Brooks-Gunn, 1989; Richards, Casper, & Larson, 1990) and to evidence increased concerns about weight and eating (Richards, Casper, & Larson, 1990). In addition to this discomfort with their bodies, girls with eating problems appear to experience discomfort within their families. Eating disordered daughters tend to perceive their families as less "healthy" (Waller, Slade, & Calam, 1990a) and to describe their family environments as more conflictual and less supportive (Johnson & Flach, 1985; Ordman & Kirschenbaum, 1986) than do normal controls.

The theoretical and clinical literature stresses the role of the mother in the development of her daughter's eating disorder (e.g. Bruch, 1985; Selvini-Palazzoli, 1974; Goodsitt, 1983; Sugarman & Kurash, 1982). However, the limited data on fathers indicate that the father is more significant than was previously thought (Humphrey, 1986, 1989; Lewis, 1986). Because previous research has tended to treat both parents in the eating disordered family as one unit, little is known about how the daughter perceives her

mother and her father separately. In this study, the daughter's subjective experience of both her mother and her father are studied separately in order to gain a better understanding of the role that each parent plays in the emergence of eating problems.

Furthermore, it is unfortunate that, with one exception (Attie & Brooks-Gunn, 1989), the research on eating problems and disorders has been concurrent rather than longitudinal. Concurrent studies have been useful for examining the correlates of eating problems but are limited in that they cannot provide information about the precursors of these problems. The present study uses the Experience Sampling Method (ESM)(Larson, 1989) to examine both concurrently and longitudinally the roles that pubertal development and parental relationships play in the development of eating problems. The study examines how young adolescent girls' feelings about their pubertal status as well as their subjective experiences with their parents relate to the emergence of eating problems during later adolescence (2 years later). This study focuses on eating problems such as dieting, binge eating, and a preoccupation with food rather than on the more severe eating disorders of anorexia and bulimia. Eating problems have been found to be prevalent among adolescents and may lead to the development of eating disorders (Leichner, Arnett, Rallo, Srikameswaran, & Vulcano, 1986; Nylander, 1971).

Pubertal Development

With the advent of puberty, girls experience an increase in body fat (Dornbusch, Carlsmith, Duncan, Gross, Martin, Ritter, &

Siegel-Gorelick, 1984; Duncan, Ritter, Dornbusch, Gross, & Carlsmith, 1985; Richards, Petersen, Boxer, & Albrecht, 1990). Accompanying this weight gain is an increase in weight and eating concerns (Richards, Casper, & Larson, 1990). These concerns can be understood within the context of societal messages that equate beauty with a thin, prepubescent body. As girls enter puberty and move away from this thin standard of beauty, they become increasingly dissatisfied with their bodies (Dorn, Crockett, & Petersen, 1988; Dornbusch et al., 1984; Duncan et al., 1985; Richards, Petersen, Boxer, & Albrecht, 1990; Zakin, Blyth, & Simmons, 1984) and tend to perceive themselves as more overweight (Richards, Petersen, Boxer, & Albrecht, 1990). In the only longitudinal study of eating problems to date, Attie & Brooks-Gunn (1989) found that girls who felt most negatively about their bodies early in adolescence were more likely to develop eating problems 2 years later. This suggests that pubertal development is a risk factor for eating problems if the adolescent perceives the accompanying increase in body fat negatively.

Timing of puberty also appears to be related to adolescent girls' feelings about their bodies. Findings suggest that girls who develop on-time or late compared to their peers have more positive body images than do those girls who develop early (Alsaker, 1990; Blyth, Simmons, & Zakin, 1985; Brooks-Gunn & Warren, 1985; Duncan et al., 1985; Tobin-Richards, Boxer, & Petersen, 1983). This may be because early-maturing girls tend to be heavier than their peers (Blyth et al., 1985; Brooks-Gunn & Warren, 1985; Duncan et al.,

1985). In addition, early-maturing girls may feel less comfortable with their bodies because, at a time when peer acceptance is important, their bodies are different from those of the majority of their peers. The findings of Tobin-Richards et al. (1983) tend to support this view; they found that young adolescent girls who perceived themselves to be on-time in their physical maturation as compared with their peers felt more attractive and more positive about their bodies than those who perceived themselves as early or late. However, those girls who perceived their physical timing to be late felt more positively about their bodies than those who perceived themselves to be early. This study examines young adolescent girls' feelings about the timing of their pubertal development in relation to their peers. It is expected that 1) those girls who perceive their physical development as occurring earlier than that of most of their peers at Time 1 will be at greater risk for eating problems at Times 1 and 2 than those girls who perceive their physical development as occurring on-time or later than that of their peers and 2) those girls who report feeling unhappy about the timing of their physical development at Time 1 will be at greater risk for eating problems at Times 1 and 2 than those girls who report feeling neutral or happy about the timing of their physical development.

Parental Relationships

In addition to feeling uncomfortable with their bodies, girls with eating problems report feeling uncomfortable within their

families. Eating disordered girls perceive their families as less "healthy" than do normal controls (Waller, Calam, & Slade, 1989; Waller, Slade, & Calam, 1990a). They tend to describe their family relationships as being more conflictual (Johnson & Flach, 1985; Ordman & Kirschenbaum, 1986), less adaptive (Waller, Calam, & Slade, 1988; Waller, Slade, & Calam 1990b) and less cohesive (Waller, Calam, & Slade, 1988; Waller, Slade, & Calam, 1990b; Johnson & Flach, 1985; Ordman & Kirschenbaum, 1986) than do normal controls. Humphrey (1987) videotaped interactions of bulimic-anorexic and control families and coded them using the structural analysis of social behavior (SASB). She found that the eating disordered families were more belittling and appeasing as well as ignoring and "walling off" than were the control families. They were also less helping, trusting, nurturing, and approaching than the control families. These findings suggest that eating disordered family relations are characterized by conflict, negativity, poor communication, and a lack of mutual support among members. Brodie-Moehle & Richards (under revision) found that 5th through 9th grade girls who were from families with high levels of conflict and low levels of cohesion were more likely to report weight and eating concerns. Because weight and eating concerns appear to be a risk factor for the development of eating problems, these findings suggest that an unhealthy family environment plays a role in the development of eating problems.

Eating disordered girls appear to feel less close to their parents than do normal controls. They report poorer communication

with both parents (Waller, Calam, & Slade, 1988) and perceive both parents to be lower in "care" (warmth and empathy) (Calam, Waller, Slade, & Newton, 1990) than do normal controls.

In addition, eating disordered girls appear to feel less accepted and more criticized by their parents. Humphrey (1986) found that bulimics, bulimic-anorexics, and anorexics all perceived their parents as more blaming, rejecting, and neglectful than did normal controls. Studies indicate that some of the criticism eating disordered daughters experience from their parents is about their weight. An exploratory study done on one family by Ben-Tovim, Hunter, & Crisp (1977) investigated the evaluation of the parents regarding their anorexic daughter's size. The parents were asked to evaluate their daughter based on the differing descriptions the researcher provided of the width of various parts of her body. They found that for both parents the less the proposed width of their daughter's body parts, the more positive their evaluation of her. These results suggest that parents may base their evaluations of their eating disordered daughters on her weight. A related study by Levine, Smolak, Moodey, Shuman, and Hessen (1991) found that perceived parental investment in their daughter's slenderness was an independent predictor of eating disturbance in a sample of 6th through 8th graders. Perceived parental investment in slenderness was determined by summing the girl's report of how concerned her parents were that she might be or become too fat as well as her report of how important it was to her parents that she be thin. These results suggest that living in a family in which parental

approval may be dependent on being thin may be another risk factor for the development of eating problems. The daughter may internalize her parent's negative or critical evaluations about her body and turn to disordered eating to change these evaluations.

This study investigates how young adolescents' subjective experiences with their parents contribute to the emergence of eating problems concurrently and longitudinally (two years later). In addition to studying those times when adolescents are with only one of their parents, those times when the adolescent is with one and/or both parents are examined in order to understand the effects of experience with both parents on eating problems. Based on the literature, it is expected that 1) those girls who spend less time with their parents at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who spend more time with their parents, 2) those girls who perceive their parents as less friendly at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who perceive their parents as more friendly, 3) those girls who have less positive affect when with their parents at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who have more positive affect when with their parents, and 4) those girls who feel less positively about their bodies when with their parents at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who feel more positively about their bodies when with their parents.

Relationship with mother. The clinical and theoretical literature on anorexia and bulimia has focused on the role that the mother plays in her daughter's illness. Much of this literature traces the roots of the eating disorder to the primary relationship between the infant and her primary caregiver (usually her mother).

Bruch based her psychodynamic theory of anorexic families on clinical observations. She theorizes (1985) that the anorexic loses her sense of her own bodily and emotional needs as an infant. The mother disregards or fails to respond in an appropriate way to the signals that the infant uses to express her needs; eventually, the infant loses a sense of control over her body and her emotions. If the mother fails to feed or overfeeds the infant when she cries in hunger, the infant loses the ability to perceive when she truly is hungry. Having learned as infants that their environment is controlled for them by their parents, anorexics tend to be obedient and overconforming as children and to remain dependent on their parents. They are often described by others as a perfect child, while they themselves feel "full of anxiety and stress, constantly concerned with being found wanting, not being good enough, not living up to expectations" (Bruch, 1978, p. 41). Bruch attributes the beginning of anorexia to the onset of puberty. The surge of new bodily drives, including hunger, contributes to feelings of helplessness, and "in a counterphobic effort they overcontrol their needs" (Bruch, 1978, p. 13) and starve themselves.

Selvini-Palazzoli also based her theory on observations of anorexic families in psychotherapy. She observed that the dominant

figure in anorexic families is the mother who dictates to her daughter who and how she should be. As a result, anorexics "lack any true knowledge of themselves, and are quite incapable of coping with the shattering and quite unexpected advent of puberty" (Selvini-Palazzoli, 1974, p. 40). Selvini-Palazzoli noted that her anorexic patients seemed unable to describe their emotions or inner feelings. Like Bruch, she attributes this inability to the parents' failure to respond to their daughters' emotional needs in infancy. By failing to respond to the signals that the infant emits to express her needs, the caregiver--most often the mother--contributes to the infant's inability to trust her own bodily sensations. The anorexic becomes dependent on her parents to tell her what she feels and as a result loses touch with her own body and feelings. Selvini-Palazzoli describes the parents of anorexics as putting their daughter in a fixed role, most often that of the "good little girl". This is the only role the parents can accept their daughter in, and she fulfills it in order to please her parents and because she identifies with it.

The anorexic's mother is thus portrayed as controlling of her daughter; she creates an environment in which her daughter is expected to conform to her rigid expectations and demands. In general, the literature describes the anorexic's mother as overprotective, perfectionistic, dominating, anxious, and afraid of separating from her children (Strober & Humphrey, 1987). The anorexic mother may hold unrealistic expectations for her daughter's appearance; she may expect that her daughter remain thin despite the weight gain that occurs naturally with puberty. It seems that an

environment in which the daughter is valued not for herself but for how well she conforms to her parent's expectations --and this may include expectations for thinness--would place the daughter at a risk for developing eating problems.

The theoretical literature on bulimia also implicates the mother-infant relationship in the formation of disordered eating patterns. Psychoanalytic theorists (e.g. Goodsitt, 1983; Sugarman & Kurash, 1982) have suggested that the bulimic's binging and purging is a substitute for maternal functions that were never adequately internalized. The mother of the bulimic is described as failing to provide adequate nurturance and caring to her infant as well as appropriate soothing when the infant experiences tension. In this formulation, food provides the nurturance and tension regulation that the bulimic never received from her mother.

Humphrey and Stern (1988) based their theory on clinical observations of bulimic families. They used Winicott's concept of the maternal "holding environment" (1965) to understand the dynamics of the bulimic family. The "holding environment" refers to the nurturing protective care that the mother provides the infant during her first years of life. Humphrey and Stern stress the importance of nurturance to the infant's development. Nurturance refers to both the physical expressions of the mother's love for the infant as well as her unconditional and unselfish caring, affection, and acceptance of the infant. With proper nurturance, the child develops a sense of self-worth and trust in others. With the sense of security gained in the holding environment, she begins to

individuate from the mother. However, if nurturance is inadequate or lacking, the infant never experiences love in a consistent way; this results in anxiety and frustration and may eventually lead to feelings of emptiness and despair. Humphrey and Stern hypothesize that "failures in the provision of basic nurturance are multigenerational, family-wide deficits with which all members struggle. That is to say, all family members feel deprived of emotional supplies to one degree or another, and feel correspondingly 'hungry' emotionally"(p. 340). Thus, for the bulimic food is a way of self-nurturance, of feeding the emotional hunger that was never satisfied by the mother.

Humphrey and Stern describe the bulimic mother as having had inadequate mothering as a child, and therefore as being unable to provide adequate mothering for her child. Rather, she uses the child to fulfill her own emotional needs as her own mother used her. The bulimic's attempts to separate are met with punishment or abandonment because her needs are in conflict with those of her parents. Humphrey and Stern suggest that the bulimic, unlike the anorexic who plays the role of the "good" child, often becomes the "bad" object in the family upon whom her parents project the "bad" and inadequate parts of themselves. She identifies with this role in order to maintain family equilibrium and to avoid rejection by her parents. The mother of the bulimic is described as typically overcontrolling of her emotions, rejecting of the bulimic, and withholding of her affection.

Although theoretical explanations differ for anorexia and bulimia, they share the idea that the eating disordered daughter has a dysfunctional relationship with her mother. The anorexic's mother is overnurturing--she is overprotective and demanding of her daughter-- while the bulimic's mother is undernurturing--she is rejecting and unaffectionate with her daughter. In both cases, the daughter is not valued for who she is but for the role that she plays for her mother.

Empirical data on eating disordered daughters' relationships with their mothers is less plentiful than the theoretical literature would suggest; most of the research examines mothers and fathers as a unit so that mothers are not examined separately. However, the research that has been done indicates that mothers of eating disordered daughters tend to be more controlling and demanding of their daughters than are normal controls. Sights and Richards (1984) audiotaped interviews with the parents of bulimic and nonbulimic college women. The mothers of the bulimics were judged to be more controlling and domineering than the control mothers as well as to hold higher expectations for their daughters. Humphrey (1987) examined the relationships among family members in bulimic-anorexic and nondistressed families using Structural Analysis of Social Behavior (SASB). The mothers of anorexics, regardless of how their interaction with their daughter began, resorted to control; they used watching and managing behaviors with their daughters significantly more than did normal mothers, and their daughters reacted with resentful submission.

Research also suggests that the high expectations mothers of eating disordered daughters hold for their daughters are applied to their daughters' weight and appearance. Pike and Rodin (1991) found that mothers of daughters with disordered eating thought that their daughters should lose significantly more weight than did control mothers; these findings remained significant after controlling for the daughters' weight. Also, these mothers judged their daughters as less attractive than the daughters judged themselves. The authors hypothesized that eating disorders may emerge partly in response to pressure by the mother to be thin and attractive; the mother may serve as a model through which the daughter indirectly learns disordered eating or she may pressure her daughter directly to lose weight. In any case, it is significant that these daughters receive critical and negative messages about their bodies rather than supportive and positive ones.

In this study, daughter's feelings when with their mothers are examined. Based on the literature discussed, it is expected that 1) those girls who feel less close to their mothers at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who feel closer to their mothers, 2) those girls who spend less time with their mothers at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who spend more time with their mothers, 3) those girls who perceive their mothers as less friendly at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who perceive their mothers as more friendly, 4) those girls

who have less positive affect when with their mothers at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who have more positive affect when with their mothers, and 5) those girls who feel less positively about their bodies when with their mothers at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who feel more positively about their bodies when with their mothers.

Relationship with father. The role of the father in his daughter's eating disorder has been minimally addressed in the literature. Unfortunately, this minimization contributes to the prevalence of "mother-blaming" in psychological research (Caplan & Hall-McCorquodale, 1985) and points to the need for research on the father's role in child and family pathology (Phares, 1992; Phares & Compas, 1992).

Despite the dearth of research on the father's role in eating disorders, the studies that have been done suggest that eating disordered daughters experience difficulties in their relationships with their fathers that are at least as significant as those they experience with their mothers. In the previously cited study by Humphrey (1987), the results (that the eating disordered parents were more belittling and appeasing, ignoring and "walling off", and less helping, trusting, nurturing, and approaching than the control families) were applicable to both mothers and fathers. In addition, Humphrey (1986) used the SASB method to test the formulation that bulimia reflects familial deficits in nurturance and empathy; she found that "fathers were at least as integral to their daughters'

unmet needs for nurturance and empathy as were mothers. In fact, the findings were even more consistent for fathers than for mothers"(p. 401). In another study using SASB, Humphrey (1989) compared interactions of anorexic, bulimic-anorexic, bulimic, and normal families. She found that fathers of all three eating disordered groups showed more watching and managing as well as belittling and blaming towards their daughters than did the normal control fathers. Lewis (1986) studied eating disordered women's conscious and preconscious perceptions of their parents. Although not significant for mothers, the results showed that eating disordered women perceived their fathers as less loving and more hostile and aggressive than did normal controls on the preconscious level (as measured by themes expressed in TAT stories). Finally, Cole & Kobak (1990) interviewed eating disordered women about their memories and experiences of their relationships with their parents. The interviewers rated the fathers of the eating disordered women as unavailable, critical, perfectionistic, and angry compared to those of the normal controls.

All of these results indicate that the literature stressing the primary importance of the mother to eating disorders should be reexamined. The role of the father in eating disorders needs to be further explored. The limited research available suggests that fathers of eating disordered daughters are less warm and loving as well as more critical and blaming towards their daughters than are normal control fathers. This study further explores how daughters' experience of their fathers relates to later eating problems.

The Study

The aim of this paper is to investigate the roles that 1) adolescent girls' perceptions of the timing of their physical development and 2) adolescent girls' subjective experience of their mothers and fathers play in the development of eating problems concurrently and longitudinally (2 years later). The participants' subjective experiences when with their parents are examined using the ESM (Larson, 1989). According to this method, participants carry pagers for one week and complete self-reports about their daily moods, activities, and companionship when signalled by their pagers. This method is advantageous in that it provides a way of examining how participants experience their daily lives subjectively. In addition, because subjects record their experiences immediately, it avoids biases and distortions that can arise when participants rely on long-term recall (Larson, 1989).

In this paper, the following hypotheses are investigated:

1. Perceptions of Timing of Physical Development. It is expected that 1) those girls who perceive their physical development as occurring earlier than that of most of their peers at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who perceive their physical development as occurring on-time or later than that of their peers and 2) those girls who report feeling unhappy about the timing of their physical development at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who report feeling neutral or happy about the timing of their physical development.

2. Experience With Mother. It is expected that 1) those girls who feel less close to their mothers at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who feel closer to their mothers, 2) those girls who spend less time with their mothers at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who spend more time with their mothers, 3) those girls who perceive their mothers as less friendly at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who perceive their mothers as more friendly, 4) those girls who have less positive affect when with their mothers at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who have more positive affect when with their mothers, and 5) those girls who feel less positively about their bodies when with their mothers at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who feel more positively about their bodies when with their mothers.

3. Experience With Father. Because of the lack of research on fathers and eating problems, this aspect of the study is largely exploratory. Based on the limited data available about fathers, it is expected that 1) those girls who feel less close to their fathers at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who feel closer to their fathers, 2) those girls who spend less time with their fathers at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who spend more time with their fathers, 3) those girls

who perceive their fathers as less friendly at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who perceive their fathers as more friendly, 4) those girls who have less positive affect when with their fathers at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who have more positive affect when with their fathers, and 5) those girls who feel less positively about their bodies when with their fathers at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who feel more positively about their bodies when with their fathers.

4. Experience with Parents. It is expected that 1) those girls who spend less time with their parents at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who spend more time with their parents, 2) those girls who perceive their parents as less friendly at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who perceive their parents as more friendly, 3) those girls who have less positive affect when with their parents at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who have more positive affect when with their parents, and 4) those girls who feel less positively about their bodies when with their parents at Time 1 will be at greater risk for developing eating problems at Times 1 and 2 than those girls who feel more positively about their bodies when with their parents.

5. Interactions. Research (e.g. Sameroff & Chandler, 1975) suggests that the interaction of physiological variables and environmental

variables may be more important for understanding child and adolescent development than the main effects of these variables. It is expected, therefore, that interactions of the perceptions of physical timing variables (physiological) and the experience with parents variables (environmental) at Time 1 will significantly predict eating problems at Times 1 and 2.

CHAPTER II

METHOD

Sample

The sample consisted of 240 girls who were part of a larger study (N=483) of the experiences of both boys and girls during early adolescence. The sample for this study included all of the girls who participated in the larger study. Participants in the larger study were randomly selected from two suburban communities near Chicago--one middle class and the other working class-- and were predominantly Caucasian. The samples represented their respective community populations with few differences. Stratified sample selection resulted in equal representation by gender, grade, and community. There were no significant differences in social class or self-esteem between boys and girls in the larger sample. Seventy percent of the students who were asked to be in the larger study agreed to participate and successfully completed the study, 6% agreed to participate but were disqualified from analysis because they had provided inadequate or implausible data, and 24% declined to participate or were unable to obtain permission from their parents. A school survey showed that those students who refused to participate did not differ in social class or self-esteem from those students who did participate (Larson, 1989). The adolescent girls in this study were studied originally when in the 5th to 9th grades and

then studied again two years later (N=177). A series of T-tests revealed that there were no significant differences between those girls who participated only at Time 1 and those girls who participated at both Times 1 and 2 on the variables examining pubertal development, perceptions of timing of physical development, and Time 1 eating scores.

Procedure

The adolescents reported on their daily experiences according to the Experience Sampling Method (ESM) (Larson, 1989). They carried electronic pagers for one week. When signalled by their pagers, they completed self-reports on their current experiences; these self-reports examined daily moods, activities, and companionship (See Appendix). The signals were scheduled at randomly determined times within two hour time blocks and occurred between 7:30 AM and 9:30 PM. Participants were instructed to respond to as many signals as possible and to fill out their self-report forms immediately after each signal. They were assured of the confidentiality of their information. At the end of the week, participants were interviewed about their experience and completed a series of questionnaires. The same adolescents were studied again two years later. At Time 2, participants did not carry beepers but filled out questionnaires similar to those that they had completed at Time 1.

Measures

Perceived timing of physical development. As part of a questionnaire, girls were asked *Does your physical development seem to be earlier or later than most of the other girls your age*? Responses were coded on a 5-point scale including 1 (*Much Earlier*), 2 (*Somewhat Earlier*), 3 (*About the Same*), 4 (*Somewhat Later*), and 5 (*Much Later*). This question has been shown to accurately assess perceptions of timing (Tobin-Richards, Boxer, & Peterson, 1983). In addition, participants were asked how they felt about the timing of their physical development in relation to their peers; their responses were coded on a 5-point scale including 1 (*Very Unhappy*), 2 (*Somewhat Unhappy*), 3 (*Neither Happy nor Unhappy*), 4 (*Somewhat Happy*), and 5 (*Very Happy*).

Pubertal development. Pubertal development was assessed using two questions that were taken from the Morris and Udry Scale of Pubertal Status (Morris & Udry, 1980). Girls rated their current state of physical development using drawings depicting 5 levels of physical development. The drawings were created from Tanner's photographs illustrating the 5 stages of development for breasts and pubic hair. Participants were asked to indicate which of 5 drawings, ranging from least to most developed, most resembled their current level of breast and of pubic hair development. For example, in the drawings of breast development, Drawing 1 depicted the breasts before the advent of puberty, Drawings 2 through 4 depicted the breasts in increasing stages of maturity, and Drawing 5 depicted fully developed and mature breasts. These two self-report items,

when compared to other self-report measures of pubertal development, were the most highly correlated with physician's ratings; the correlation between girls' self-reports on the combined picture ratings and physician ratings was .82 (Brooks-Gunn, Warren, Rosso, & Gargiulo, 1987). For this study, separate scores were calculated for each of the 2 self-report items. The resulting variables were named Pubertal development I (ratings of breast development) and Pubertal development 2 (ratings of pubic hair development). Each variable measures a slightly different aspect of pubertal development.

Experience when with parents. This study focused on five aspects of the girls' experience when with her parents: 1) the amount of time she spent with her parents, 2) her feelings of closeness to her parents, 3) her perceptions of her parent's friendliness, 4) her affect when with her parents and 5) her feelings about her body when she was with her parents. Because the daughter's experience of each parent is of interest, time with mother and time with father were analyzed separately as well as together.

The amount of time spent with mothers, fathers, and with parents was assessed using responses to the question on the self-report form: "Who were you with?" Time with mother included those times that subjects were paged and reported being (1) alone with their mother or (2) with their mother and siblings. Time with father included those times that subjects were paged and reported being (1) alone with their father or (2) with their father and siblings.

Time with parents included those times that subjects were paged and reported being with one or both of their parents with or without other people present. Percentages in each category were computed from each adolescent's self-reports. The distribution of the percentage of time with mother/father/parents variables was skewed. In order to normalize the distribution, the square root of these variables was used in the analyses.

Feelings of closeness with mother was assessed using a 9-item scale adopted from work by Blyth (1982). The scale measures the perceived closeness of the adolescent's relationship with her mother. Feelings of closeness with father was assessed using a scale equivalent to that used to assess feelings of closeness with mother. Scores on these 2 scales range from 1 to 5, with the higher scores representing increased feelings of closeness with mother and with father. Internal reliability measured at Time 1 of the current study revealed alphas of .83 and .88 for the closeness with mother and closeness with father scales, respectively.

Daughters' perceptions of their parents' friendliness was assessed with an item on the ESM self-report form. Participants were asked to rate the friendliness of their companions using a 7-point semantic-differential scale on the dimension *friendly-unfriendly*.. Responses were converted to z-scores to eliminate individual differences due to overall response tendencies. In this way, the responses of participants who tended to respond on the high or the low end of the scale were converted to a common scale

(mean=0, S.D.=1) with which they could be compared to the responses of other participants

Daughters' affect when with parents was assessed using several items from the ESM self-report form. Affect was computed with average ratings on three 7-point semantic-differential scales on the dimensions *happy-unhappy, cheerful-irritable*, and *friendly-angry*(alpha=.75; Csikszentmihalyi and Larson, 1984). Responses were converted to z-scores to eliminate individual differences due to overall response tendencies.

Daughters' feelings about their body when with parents was examined with ratings on the ESM self-report form. Feelings of attractiveness and thinness when with parents were assessed with ratings on two 7-point semantic-differential scales on the dimensions of *attractive-ugly* and *thin-fat* (Richards & Larson, under revision). Mean feelings of attractiveness and thinness were computed as the average ratings on the two scales. Responses were converted to z-scores to eliminate individual differences due to overall response tendencies.

Eating problems. Eating attitudes and problems were assessed using the Weight and Eating Concerns (WEC) scale at Time 1 and the Eating Attitudes Test-26 (EAT-26) at Time 2.

The WEC (Richards, Casper, & Larson, 1990) assesses children and young adolescents for preoccupation with weight maintenance and eating using language that they can understand. The scale consists of the following 6 items that are rated with a 6-point Likert scale ranging from *Describes me very well* to *Does not*

describe me at all:: I am terrified about being overweight; I think about burning up calories when I exercise; I like my stomach to be empty; Eating too much makes me feel gross and ugly; When I am upset, I worry that I will start eating; I think about dieting. The scale has interitem reliability(Cronbach's Alpha=.79 for girls and .75 for boys) (Richards, Casper, & Larson, 1990). Validity data for the scale includes correlations of WEC scores with girls' reports of feelings of thinness on the ESM ($r=-.31$, $p< .01$), girls' perceptions of their weight ($r=.44$, $p< .001$), boys' perceptions of their weight ($r=.50$, $p<.001$), girls' satisfaction with their weight ($r=-.23$, $p< .05$), and boys' satisfaction with their weight ($r=-.26$, $p< .05$). See Richards, Casper, and Larson (1990) for a more complete discussion of the validity of the WEC scale. Higher scores on the WEC reflect fewer weight and eating concerns.

The EAT-26 is a shortened version of the EAT-40, a 40-item measure of the behaviors and attitudes characteristic of anorexia nervosa. See Garner & Garfinkel (1979) for a discussion of the reliability and validity of the EAT-40. Items are rated with a 6-point Likert scale ranging from *Describes me very well* to *Does not describe me at all.* Factor analysis of the EAT-40 revealed 3 separate factors (Garner, Olmsted, Bohr, & Garfinkel, 1982). Factor I, Dieting, contains items relating to an avoidance of fattening foods and a preoccupation with being thinner. Factor II, Bulimia and Food Preoccupation, contains items reflecting thoughts about food as well as bulimic behavior. Factor III, Oral Control, contains items relating to self-control of eating and the perceived pressure from

others to gain weight. The 14 items that did not load on these 3 factors were eliminated from the EAT-40, resulting in the EAT-26 (See Appendix). The EAT-26 is highly correlated with the EAT-40 (r=.98) (Garner et al., 1982), indicating that the items eliminated from the EAT-40 were redundant. Button and Whitehouse (1981) found the EAT-40 to be useful as a measure of concern about weight and food intake and valuable in detecting subclinical eating problems in college students. They suggested that the EAT-40 addresses a range of eating problems and concerns that vary in their severity. The EAT-26 has successfully been used to identify eating problems and concerns in nonclinical adolescent samples (Johnson-Sabine, Wood, Mann, & Wakeling, 1985; Williams, Schaefer, Shisslak, Gronwaldt, & Comerci, 1986). Higher scores on the EAT-26 reflect healthier eating attitudes and behaviors.

See Table 1 for an overview of the measures used in the study.

Table 1

Variables Used in the Study

Construct	Type of Measure	Measure	Time Given
Grade	School report	Participants' grade in school	1
Pubertal Development	Questionnaire	Morris and Udry Scale of Pubertal Status:	
		(1) Ratings of breast development	1
		(2) Ratings of pubic hair development	1
Eating Problems	Questionnaire	Weight and Eating Concerns scale (WEC)	1
	Questionnaire	Eating Attitudes Test-26 (EAT-26)	2
Perceptions of Timing of Physical Development	Questionnaire	"Does your physical development seem to be earlier or later than most of the other girls your age?"	1
		"How do you feel about that?" (very unhappy-very happy)	1
Experience with Mother/Father	Questionnaire	Feelings of closeness with mother/father	1
	Experience Sampling Method (ESM)	%of time spent with mother/father	1
		Perception of mother's/father's friendliness	1
		Affect with mother/father	1

		Feelings of attractiveness and thinness with mother/ father	1
Experience with Parents	Experience Sampling Method (ESM)	%of time spent with parents	1
		Perception of parents' friendliness	1
		Affect with parents	1
		Feelings of attractiveness and thinness with parents	1

Analysis of Data

Data were analyzed using stepwise regression analyses predicting eating problems concurrently (as defined by WEC scores at Time 1) and longitudinally (as defined by EAT-26 scores at Time 2). The effects of grade (in order to avoid cohort effects) were controlled in the analyses. Because pubertal status has been found to be correlated with increased weight and eating concerns (Richards, Casper, & Larson, 1990), increased dissatisfaction with their bodies (Dorn, Crockett, & Petersen, 1988; Dornbusch et al., 1984; Duncan et al., 1985; Richards, Petersen, Boxer, & Albrecht, 1990; Zakin, Blyth, & Simmons, 1984) and perceptions of being overweight (Richards, Petersen, Boxer, & Albrecht, 1990) in girls, the possible confounding effects of pubertal development were controlled in the analyses. Finally, in order to control the effects of earlier eating concerns and problems on later ones, Time 1 WEC scores were controlled in the longitudinal analyses. The effects of these variables were controlled by entering them into the regressions first.

The order in which variables were entered into the regression was determined by their hypothesized importance to the prediction of eating problems. Those variables related to the physiological or innate characteristics of subjects (i.e. grade, pubertal status, and perceived timing of physical development) were expected to account for more of the variance than those related to the subjects' environment (i.e. experience with parents) or to the interactions and were therefore entered first. See Table 2 for the order in which

predictor variables were entered into the regressions. The interaction variables were entered stepwise and the experience with parents variables were forced entry in order to control for the variance that they accounted for in the interaction variables.

Table 2

How Variables Were Entered into the Regressions

Time 1: Predicting WEC scores

Step 1 (Forced)	= grade, pubertal development 1 and 2
Step 2 (Forced)	= perceptions of timing of physical development
Step 3 (Forced)	= experience with mother/father/parents
Step 4 (Stepwise)	= interactions of experience with mother/father/parents variables and perceptions of timing of physical development variables

Time 2: Predicting EAT-26 scores

Step 1 (Forced)	= grade, pubertal development 1 and 2, WEC scores
Step 2 (Forced)	= perceptions of timing of physical development
Step 3 (Forced)	= experience with mother/father/parents
Step 4 (Stepwise)	= interactions of experience with mother/father/parents variables and perceptions of timing of physical development variables

CHAPTER III
RESULTS

All variables were entered into stepwise regression analyses predicting eating problems at Time 1 and at Time 2. Concurrent analyses predicted WEC scores at Time 1. Longitudinal analyses predicted EAT-26 scores at Time 2 (2 years later).

The size of the sample used in the analyses differed depending on the independent variables used. The sample was smallest (N=86) in the analyses involving the ESM experience with father variables. Participants were with their fathers less often than with their mothers when they were signalled by the pagers; as a result, they provided less information about their experience with their fathers than they did about their experience with mothers. In order to avoid reduced sample sizes in the analyses examining experience with mother, the ESM experience with father variables were not entered in the same analyses as the ESM experience with mother variables.

Control Variables

The control variables--grade, pubertal development (assessed with 2 variables reflecting self-report ratings of breast and pubic hair development), and Time 1 WEC scores-- significantly predicted eating scores in most of the analyses. These variables were not significant in the analyses examining the ESM experience with

father variables. This may be a result of the lowered sample sizes in the analyses involving the ESM experience with father variables.

Perceptions of Timing of Physical Development

The hypothesis that those girls who perceive their physical development as occurring earlier than that of most of their peers will be at greater risk for developing eating problems was not supported. In both concurrent and longitudinal analyses, no significant main effect emerged for the perception of physical timing variable.

The hypothesis that those girls who feel less happy about the timing of their physical development will be at greater risk for developing eating problems was also not supported in the analyses. In both concurrent and longitudinal analyses, no significant main effect emerged for the happiness with timing of physical development variable.

Although the variables related to perceptions of physical timing were not significant when examined individually, they did emerge as significant when interacting with some of the parental variables (See Tables 3, 6, 7, and 8).

Table 3
Concurrent Analyses:
Regressions Predicting Time 1 WEC Scores--Closeness with Mother

Step/Independent Variable	R	R^2Ch	F Ch	Beta
1				
Grade	.25	.06	5.04**	-.14
Pubertal development 1				-.17
Pubertal development 2				-.19
2				
Perceived timing of physical development	.26	.01	0.97	+.07
Happiness with timing of physical development				-.06
3				
Closeness with mother	.30	.02	6.16*	+.16
4				
2 Interactions entered- Closeness with mother X Perceived timing of physical development	.33	.02	4.43*	+.69
Total R^2= .11				

Note: WEC = Weight and Eating Concerns Scale
Steps 1-3: Forced Entry, Step 4: Stepwise
Only significant interactions reported
N = 240

*p<.05, **p<.01

Table 4
Concurrent Analyses:
Regressions Predicting Time 1 WEC Scores--Closeness with Father

Step/Independent Variable	R	R^2Ch	F Ch	Beta
1				
Grade	.26	.07	5.59**	-.14
Pubertal development 1				-.12
Pubertal development 2				-.22
2				
Perceived timing of physical development	.27	.00	0.36	+.05
Happiness with timing of physical development				-.02
3				
Closeness with father	.31	.02	6.09*	+.16
4				
2 Interactions entered-Neither significant				
Total R^2= .10				

Note: WEC = Weight and Eating Concerns Scale
Steps 1-3: Forced Entry, Step 4: Stepwise
Only significant interactions reported
N = 234

*p<.05, **p<.01

Table 5
Longitudinal Analyses:
Regressions Predicting Time 2 EAT-26 Scores--Closeness with Father

Step/Independent Variable	R	R^2Ch	F Ch	Beta
1				
Grade	.24	.06	2.71*	-.07
Pubertal development 1				-.10
Pubertal development 2				-.10
WEC score (Time 1)				+.21
2				
Perceived timing of physical development	.25	.00	0.11	+.02
Happiness with timing of physical development				-.03
3				
Closeness with father	.35	.06	11.65**	+.26
4				
2 interactions entered - Neither significant				
Total R^2= .12				

Note: EAT-26 = Eating Attitudes Test-26
Steps 1-3: Forced Entry, Step 4: Stepwise
Only significant interactions reported
N = 177

*p<.05, **p<.01

Table 6
Concurrent Analyses:
Regressions Predicting Time 1 WEC Scores--ESM Experience with Mother Variables

Step/Independent Variable	R	R^2Ch	F Ch	Beta
1				
Grade	.28	.08	5.15**	-.12
Pubertal development 1				-.23
Pubertal development 2				-.22
2				
Perceived timing of physical development	.29	.01	0.48	+.05
Happiness with timing of physical development				-.06
3				
Time with mother	.33	.02	1.36	-.03
Affect with mother				-.04
Friendliness of mother				+.16
4				
6 interactions entered-				
Time with mother X Perceived timing of physical development	.36	.02	4.48*	+.72
Total R^2= .13				

Note: WEC = Weight and Eating Concerns Scale
Steps 1-3: Forced Entry, Step 4: Stepwise
Only significant interactions reported
N = 180

*p<.05, **p<.01

Table 7
Concurrent Analyses:
Regressions Predicting Time 1 WEC Scores--ESM Experience with Father Variables

Step/Independent Variable	R	R^2Ch	F Ch	Beta
1				
Grade	.27	.07	2.11	-.23
Pubertal development 1				-.16
Pubertal development 2				-.18
2				
Perceived timing of physical development	.29	.01	0.62	+.10
Happiness with timing of physical development				-.08
3				
Time with father	.34	.03	0.87	+.15
Affect with father				+.02
Friendliness of father				+.10
4				
6 interactions entered-				
Time with father X Perceived timing of physical development	.42	.06	5.29*	-1.13
Time with father X Happpiness with timing of physical development	.46	.04	4.07*	-1.14
Total R^2= .22				

Note: WEC = Weight and Eating Concerns Scale
Steps 1-3: Forced Entry, Step 4: Stepwise
Only significant interactions reported
N = 86

*p<.05

Table 8
Concurrent Analyses:
Regressions Predicting Time 1 WEC Scores--ESM Experience with Parents Variables

Step/Independent Variable	R	R^2Ch	F Ch	Beta
1				
Grade	.26	.07	5.34**	-.16
Pubertal development 1				-.20
Pubertal development 2				-.19
2				
Perceived timing of physical development	.27	.00	0.46	+.06
Happiness with timing of physical development				-.04
3				
Time with parents	.31	.02	1.69	-.05
Affect with parents				+.01
Friendliness of parents				+.14
4				
6 interactions entered- Friendliness of parents X Perceived timing of physical development	.33	.02	4.22*	+.47
Total R^2= .12				

Note: WEC = Weight and Eating Concerns Scale
Steps 1-3: Forced Entry, Step 4: Stepwise
Only significant interactions reported
N = 221

*p<.05, **p<.01

Experience with Mother

The hypothesis that those girls who feel less close to their mother at Time 1 will be at greater risk for eating problems was supported in the concurrent but not the longitudinal analyses. The closeness with mother variable emerged as a significant predictor of Time 1 WEC scores (F=6.16, R^2change=.02, p<.05) (See Table 3). In addition, the closeness with mother variable was significant when interacting with the perception of physical timing variable at Time 1 (See Table 3).

The hypotheses involving the ESM experience with mother variables were not supported in the concurrent or the longitudinal analyses. Time with mother, affect with mother, perceived friendliness of mother, and body feelings when with mother did not emerge as significant main effects in predicting Time 1 WEC scores or Time 2 EAT-26 scores. However, the time with mother variable did emerge as significant in the concurrent analyses when interacting with the perception of physical timing variable (See Table 6).

Experience with Father

The hypothesis that those girls who feel less close to their father at Time 1 will be at greater risk for eating problems was supported in both the concurrent and the longitudinal analyses. The closeness with father variable emerged as a significant predictor of Time 1 WEC scores (F=6.09, R^2change=.02, p<.05) and Time 2 EAT-26 scores (F=11.65, R^2change=.06, p<.01) (See Tables 4 and 5).

The hypotheses involving the ESM experience with father variables were not supported in the concurrent or the longitudinal analyses. Time with father, affect with father, perceived friendliness of father, and body feelings when with father did not emerge as significant main effects in predicting Time 1 WEC scores or Time 2 EAT-26 scores. However, the time with father variable emerged as significant in the concurrent analyses when interacting with the perception of physical timing and the happiness with timing of physical development variables. The analyses involving the ESM experience with father variables accounted for the most variance of all the analyses; almost a quarter of the variance (22%) was explained by these variables (See Table 7).

Experience with Parents

The hypotheses involving the ESM experience with parents variables were not supported in the concurrent or the longitudinal analyses. Time with parents, affect with parents, perceived friendliness of parents, and body feelings when with parents did not emerge as significant main effects in predicting Time 1 WEC scores or Time 2 EAT-26 scores. However, the perceived friendliness of parents variable was significant in the concurrent analyses when interacting with the perception of physical timing variable (See Table 8).

Interactions

The hypothesis that an interaction of the physiological (perceptions about timing of physical development) and the environmental (experience with parents) aspects of the participants' experience would predict eating problems was supported in the concurrent but not the longitudinal analyses. Although the perception about physical timing variables did not significantly predict WEC or EAT-26 scores, they emerged as significant predictors in interaction with the experience of parents variables.

Time 1. An interaction revealed that those girls who felt less close to their mothers reported similar WEC scores whether they perceived their physical timing as occurring earlier, on-time, or later than that of their peers. However, those girls who felt closer to their mothers reported the healthiest WEC scores when they perceived their timing as late, moderate WEC scores when they perceived their timing as on-time, and the least healthy WEC scores when they perceived their timing as early (F=4.43, R^2change=.02, p<.05) (See Figure 1). Another interaction showed that those girls who spent less time with mother reported similar WEC scores regardless of their perceptions of the timing of their physical development. Those girls who spent more time with mother, however, reported the healthiest WEC scores when they perceived the timing of their physical development as occurring later than that of their peers, moderate WEC scores when they perceived their timing as on-time, and the least healthy WEC scores when they perceived their timing as early (F=4.48, R^2change=.02, p<.05) (See

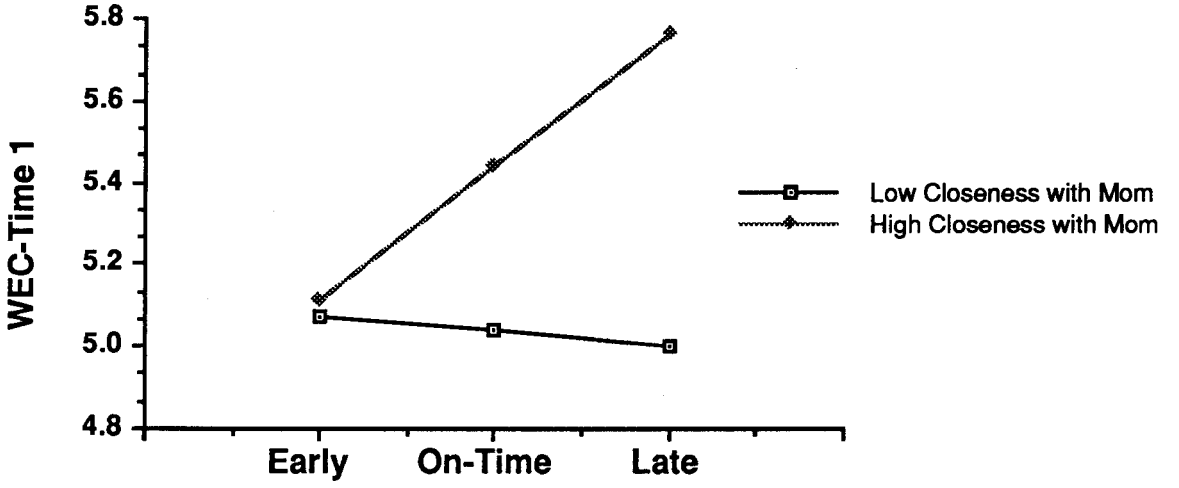
Figure 2). A pattern similar to that of the interaction of closeness with mother and perceived timing of physical development was found in the interaction of perceived friendliness with parents and perceived timing of physical development (F=4.22, R^2change=.02, p<.05) (See Figure 3). These results suggest that higher reported closeness with mother, time with mother, and perceived friendliness of parents serve as protective factors for those girls who perceive their timing as occurring on-time and late as compared to their peers.

Another interaction revealed that those girls who spent less time with their fathers reported the healthiest WEC scores when they perceived their timing as late, moderate WEC scores when they perceived their timing as on-time, and the least healthy WEC scores when they perceived their timing as early. Those girls who spent more time with their father, however, reported similar WEC scores regardless of their perceptions of pubertal timing, and had healthier WEC scores overall than did those girls who spent less time with their fathers (F=5.29, R^2change=.06, p<.05) (See Figure 4). In a similar interaction, those girls who spent less time with their fathers reported the healthiest WEC scores when they felt happy about the timing of their physical development, moderate WEC scores when they felt neutrally about their timing, and the least healthy WEC scores when they felt unhappy about their timing. Girls who spent more time with their fathers, however, had the healthiest WEC scores when they felt unhappy about their timing, moderate WEC scores when they felt neutrally about their timing, and the

least healthy WEC scores when they felt happy about their timing. In addition, those girls who spent more time with their fathers had healthier WEC scores overall than did those girls who spent less time with their fathers (F=4.07, R^2change=.04, p<.05) (See Figure 5). These results support the idea that time with father is an important protective factor, particularly for those girls who perceive their timing as early and those girls who feel unhappy with this timing.

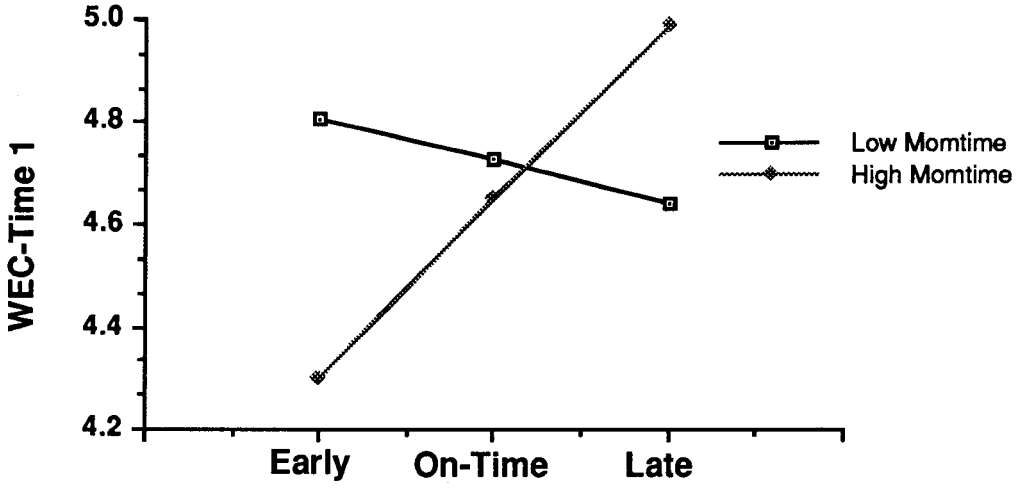
Time 2. No interactions of the perceptions of timing of physical development variables and the experience with parents variables predicted eating problems longitudinally.

Figure 1
Effect of Interaction of Closeness with Mother and Perceived Timing of Physical Development on Time 1 WEC Scores



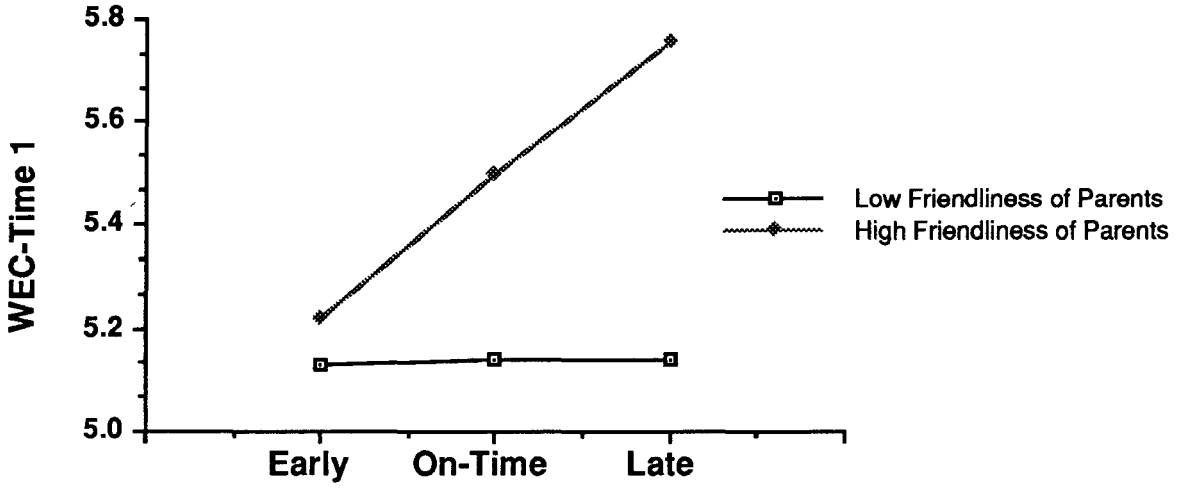
Note: Higher scores on the WEC indicate fewer weight and eating concerns

Figure 2
Effect of Interaction of Time with Mother and Perceived Timing of Physical Development on Time 1 WEC Scores



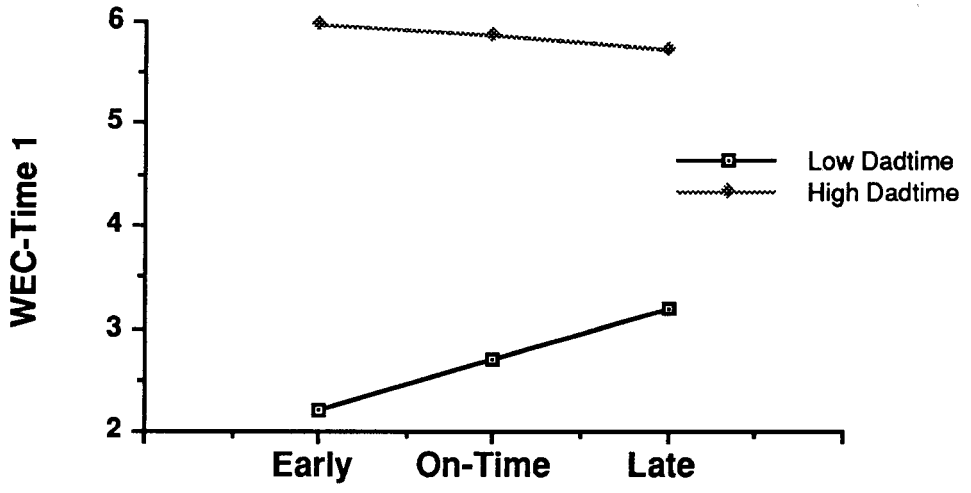
Note: Higher scores on the WEC indicate fewer weight and eating concerns

Figure 3
Effect of Interaction of Perceived Friendliness of Parents and Perceived Timing of Physical Development on Time 1 WEC Scores



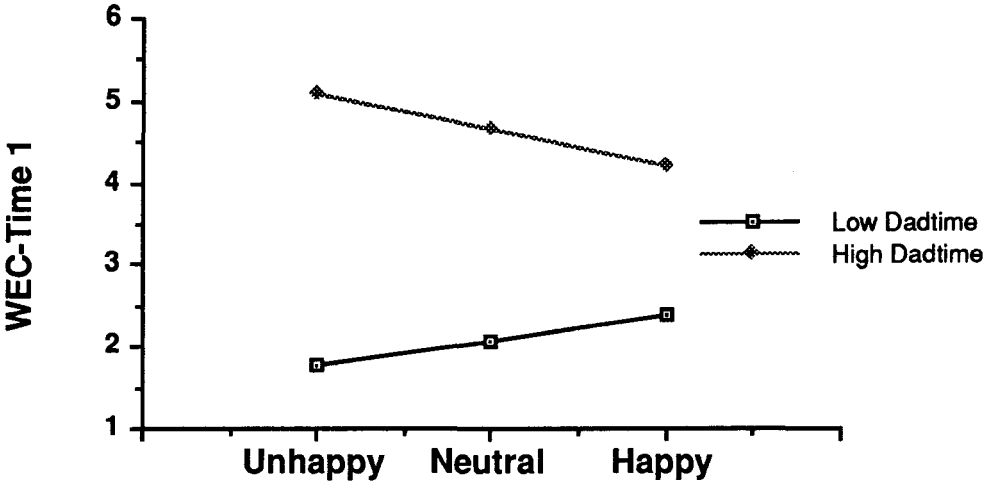
Note: Higher scores on the WEC indicate fewer weight and eating concerns

Figure 4
Effect of Interaction of Time with Father and Perceived Timing of Physical Development on Time 1 WEC Scores



Note: Higher scores on the WEC indicate fewer weight and eating concerns

Figure 5
Effect of Interaction of Time with Father and Happiness with Timing of Physical Development on Time 1 WEC Scores



Note: Higher scores on the WEC indicate fewer weight and eating concerns

CHAPTER IV
DISCUSSION

This study has examined both cross-sectionally and longitudinally the influence of perceptions of timing of physical development and experience with parents on the development of eating problems in adolescent girls. It was found that those girls who felt closer to their mother reported less weight and eating concerns during 5th through 9th grades. Those girls who felt closer to their father reported less weight and eating concerns during 5th through 9th grades as well as healthier eating scores 2 years later. Although feelings of closeness with both parents seem to be important for understanding eating scores concurrently, only feelings of closeness with father significantly predicted eating scores longitudinally. The perceptions of the timing of their physical development did not significantly predict girls' eating problems when examined by themselves. However, they were significant when interacting with several of the experience with parents variables in the concurrent analyses. Those girls who felt closer to their mothers, spent more time with their mothers, and perceived their parents as more friendly tended to report less weight and eating concerns when they perceived their timing as on-time or late. In addition, spending more time with their fathers appeared to serve as a protective factor, particularly for those girls

who perceived the timing of their physical development as early and who felt less happy about the timing of their physical development.

These results provide an important addition to the existing literature on eating problems and disorders. Because the predictors of eating problems were examined concurrently as well as longitudinally, these results aid in understanding the correlates as well as the precursors of eating problems. With the exception of Attie & Brooks-Gunn (1989), the research on eating problems has been exclusively cross-sectional. The results add to those of Attie & Brooks-Gunn to provide a beginning understanding of the factors that influence the development over time of eating problems.

The findings of this study suggest that the way the adolescent perceives her relationship with her parents has an effect on the development of eating problems. Feelings of closeness with both parents predicted eating scores concurrently, and feelings of closeness with father predicted eating scores longitudinally. In addition, perceiving their parents as friendly seemed to serve as a protective factor for those girls who perceived their physical timing as on-time or late.

The findings corroborate those of previous cross-sectional studies that show a correlation between eating problems and poor relationships with parents (e.g. Calam, Waller, Slade, & Newton, 1990; Humphrey, 1986; Waller, Calam, & Slade, 1988). The longitudinal finding, however, is the first to demonstrate that perceived parental relationships influence adolescent girls' later eating problems. These findings are in contrast to those of Attie &

Brooks-Gunn. They assessed family relationships with the Family Relationships Scale (Peterson et al., 1984), a subscale of the Self-Image Questionnaire for Young Adolescents (SIQYA) that examines the adolescent's perceptions of each parent and of their relationship with each parent. In addition, both adolescent girls and their mothers completed 6 subscales of the Family Environment Scale (FES) (Moos, 1974) in order to investigate overall family organization and functioning. They found that adolescents' perceptions about their parents and their families did not predict eating problems in concurrent or longitudinal analyses. However, in concurrent analyses at Time 2, it was found that mothers' ratings of the family environment predicted eating problems. Those girls who reported higher levels of eating problems lived in families characterized by relatively less cohesion, organization, and expressiveness, according to reports by their mothers.

There were several differences between the two studies. First, the social class of the samples differed. Attie & Brooks-Gunns' sample consisted of middle- to upper-middle class girls attending private school in New York. The sample of this study was drawn from working to middle-class girls attending public school near Chicago. Second, the ages of the samples differed. Attie & Brooks-Gunn studied girls originally when in grades 7 through 10 and again 2 years later. In this study, girls were examined initially when in grades 5 through 9 and again 2 years later. Third, the studies used different measures to examine the adolescents' experience with their family. Attie & Brooks-Gunn used

questionnaires while this study employed both questionnaires and the Experience Sampling Method (ESM). Perhaps the capacity of the ESM to capture adolescents' immediate experience allowed for a less biased measure of the adolescents' experiences of their parents. Denial is a common characteristic of girls with eating disorders (Fairburn, 1984). Adolescents who were only given questionnaires may have been more able to deny or minimize problems within their families than were those who were assessed with both questionnaires and the ESM. In any case, more longitudinal research is needed in order to build a clearer understanding of the ways that relationships with parents influence adolescent girls' eating problems.

The quality of the adolescent's relationship with her mother appears important to an understanding of the development of eating problems. Girls who felt closer to their mothers were more likely to report less weight and eating concerns. Also, feeling close to and spending time with their mother appeared to serve as protective factors for those girls who perceived their physical development as occurring on-time or later than that of their peers. These findings point to the importance of good quality relationships between girls and their mothers during adolescence, an idea that is supported by the existing literature (e.g. Humphrey, 1987; Sights & Richards, 1984).

Positive experiences with mother seemed to influence the eating scores of those girls who perceived their timing as on-time or late. It may be that these girls experience less negative effects

from the onset of puberty than do the early-maturing girls. Although not corroborated by this study, previous research indicates that girls who perceive their physical development as occurring early in relation to their peers feel less attractive and less positively about their bodies than do girls who perceive their timing as occurring on-time or late (Tobin-Richards et al., 1983). Early-maturing girls also tend to be heavier than their peers (Blyth et al., 1985). The weight gain at puberty and the resulting negative feelings that early-maturing girls have about their bodies place them at risk for developing eating problems. On-time and late maturing girls may be less vulnerable to the physiological influences of puberty and more likely to be influenced by environmental factors such as experience with parents. For these girls, feeling close to and spending time with their mothers seemed to protect against the development of weight and eating concerns.

Although the literature has focused on the role of the mother in the development of her daughter's eating problems, this study indicates that the adolescent's relationship with her father is a significant predictor of eating problems. Those girls who felt closer to their fathers had less weight and eating concerns concurrently as well as healthier eating scores 2 years later. In addition, spending more time with their fathers appeared to serve as a protective factor, particularly for those girls who perceived the timing of their physical development as early and who felt less happy about this timing. These findings complement the small body of literature (e.g. Cole & Kobak, 1990; Humphrey, 1986, 1987, 1989;

Lewis, 1986) that has shown correlations between problematic relationship with fathers and eating disorders.

More research is needed to gain a greater understanding of how the adolescent's relationship with her father influences her eating attitudes and behaviors. Lewis (1986) suggests that "women with eating disorders do not struggle with the impact of inappropriate mothering but rather with the dangers and problems associated with fathers who they perceive as hostile and aggressive"(p. 29) She says that the father provides an important source of support and identification for his daughter. When he is unavailable, the daughter may depend on her mother to meet her needs. She may cling to her mother, who may respond by being overinvolved and controlling of her daughter. Lewis suggests that, although the eating disordered daughter often appears enmeshed with her mother, this may be a reaction to the lack of attention and support she received from her father. It may also be important that, at a time when their bodies are becoming sexually mature, girls feel close to and supported by their fathers. Some fathers may be uncomfortable with the onset of their daughter's puberty and its accompanying sexual maturity. Not knowing how to deal with their discomfort, they may distance themselves from their daughters. This may result in the adolescent's feeling that her changing body is unacceptable or frightening. Those fathers who remain close with their daughters during the difficult time of puberty may convey acceptance of her developing body. This acceptance may be internalized and decrease the daughter's risk of developing eating problems.

It seems that spending time with their fathers served as a protective factor for those girls whose perceptions of their pubertal timing may have placed them at greater risk for eating problems. Although adolescents in this study reported spending more time overall with their mothers than with their fathers, the findings of this study point to the value of adolescent girls spending time with their fathers. During adolescence, a time when their bodies are changing and they are developing an interest in the opposite sex, it may be important to spend time with a male who is accepting and supportive of these pubertal changes. In any case, it is evident that further research on the father-daughter relationship is needed.

This study highlights the importance of considering adolescent girls' feelings of closeness to and positive interactions with each of her parents for an understanding of the development of eating problems. Both parents play a significant role in creating the emotional environment in which their daughter develops. Attempting to study the mother-daughter dyad or the father-daughter dyad in isolation can only result in a sketch of the family environment. It is by examining the triangle of both parents and the daughter-- the context in which the daughter experiences both parents-- that a more complete portrait of the family environment in which eating problems develops can be painted.

It is interesting that interactions between the perception of physical timing variables and the experience with parents variables were significant cross-sectionally but not longitudinally. After 2 years, the effects of the perceptions of physical timing variables

had diminished and only the parental variables remained significant. These findings suggest that the physiological effects of pubertal development and its timing may influence the development of eating problems in early adolescence; however, by mid-adolescence these effects seem to have diminished while the environmental effects of experience with parents continue to be important. These findings corroborate those found by Attie & Brooks-Gunn (1989) in their longitudinal study. Attie & Brooks-Gunn found that in middle adolescence (mean age =13.93 years), grade, physical maturational factors (perceived and actual timing of pubertal development, body fat), body image, and psychopathology all explained eating scores concurrently. Longitudinally, however, only body image predicted eating scores 2 years later. They suggested that the predictors of eating problems change from middle to later adolescence. While physical maturational factors related to puberty explained much of the variance at Time 1, 2 years later these factors had dropped out and personality dimensions (body image) accounted for the variance.

Both of these longitudinal studies, then, indicate that the physiological influences on eating problems are important in early adolescence but decrease in later adolescence. The two studies differ, however, in their findings regarding the effects of experience with parents on later eating problems. Although Attie & Brooks-Gunn found no evidence for such effects, this study offers support for the significance of adolescent girls' relationships with their fathers on the development of eating problems.

There are several limitations to this study. First, the sample consists of primarily working to middle-class Caucasian girls. The results of the study cannot be generalized to upper-class Caucasian girls or to members of minority groups. Second, the dependent measure (the EAT-26) addresses a range of eating problems and concerns that may indicate eating disorders or problems that will result in eating disorders. However, the findings of this study address eating problems and not the more severe clinical disorders of anorexia nervosa and bulimia. Third, the adolescents carried beepers according to the ESM method at Time 1 but not at Time 2. It would have been interesting to examine the changes over time in the adolescents' experience of their parents as well as how these changes related to the adolescents' eating attitudes and behaviors. Fourth, different criteria were used at Time 1 and at Time 2 to assess eating attitudes and behaviors. Using the same measure at both times would have allowed a more accurate assessment of how the girls' eating scores had changed over time.

Despite these limitations, the findings of this study have important implications. They indicate that adolescent girls' positive relationships with their parents predict to less weight and eating concerns concurrently, and that adolescent girls' feelings of closeness with their father predicts to healthier eating scores longitudinally. This is the first study to find a relationship between experience with parents and eating scores 2 years later. There is a need for more longitudinal research on the triangular patterns of

interaction that characterize the relationship between adolescent girls with eating problems and their parents.

This study also highlights the importance of the role of the father in the development of his daughter's eating problem. The findings suggest that fathers are at least as significant as mothers in influencing their daughter's development with respect to eating problems. The analyses involving the ESM experience with father variables accounted for the most variance of all the analyses; almost a quarter of the variance (22%) was explained by these variables. There needs to be a shift away from the "mother-blaming" view of adolescent development towards the realization that both parents are important. Future research should seek to understand the role that each parent plays in the emergence of eating problems.

Finally, the findings of this study suggest that the interaction of perceptions about timing of physical development and experience with parents is important for understanding eating scores in early adolescence. It seems that the effects of pubertal development diminish during later adolescence while the effects of relationship with parents continue to influence eating scores. More longitudinal research such as this is needed in order to better understand the role that both physiological and environmental factors play in the development of eating problems.

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Appendix

The ESM Self-Report Form

DAY: _____ TIME SIGNALLED: _____ AM/PM TIME FILLED OUT: _____

JUST BEFORE YOU WERE SIGNALLED:

WHAT WERE YOU THINKING ABOUT? _____

_____

WHERE WERE YOU? _____

_____

WHAT WERE YOU DOING? _____

_____

NAME OF TV SHOW, MOVIE, BOOK, SONG, OR MUSICAL GROUP; TOPIC OF CONVERSATION:

_____

	NOT AT ALL			SOME WHAT			QUITE			VERY MUCH
HOW MUCH CHOICE DID YOU HAVE ABOUT DOING THIS ACTIVITY?	+			+			+			+
HOW IMPORTANT WAS THIS ACTIVITY TO YOU?	+			+			+			+
DO YOU WISH YOU HAD BEEN DOING SOMETHING ELSE?	+			+			+			+
HOW WELL WERE YOU PAYING ATTENTION?	+			+			+			+
HOW SKILLED ARE YOU AT THE ACTIVITY?	+			+			+			+
HOW CHALLENGING IS THE ACTIVITY?	+			+			+			+
	0	1	2	3	4	5	6	7	8	9

****

HOW WERE YOU FEELING BEFORE YOU WERE SIGNALLED?

SORRY	YES!	yes?	no?	NO!	GREAT	YES!	yes?	no?	NO!
ACCEPTED	YES!	yes?	no?	NO!	EMBARRASSED	YES!	yes?	no?	NO!
WORRIED	YES!	yes?	no?	NO!	CALM	YES!	yes?	no?	NO!
KINDLY	YES!	yes?	no?	NO!	ANNOYED	YES!	yes?	no?	NO!
ICRUMED	YES!	yes?	no?	NO!	PROUD	YES!	yes?	no?	NO!
IMPORTANT	YES!	yes?	no?	NO!	LONELY	YES!	yes?	no?	NO!
DISAPPOINTED	YES!	yes?	no?	NO!	IN CONTROL	YES!	yes?	no?	NO!
IN LOVE	YES!	yes?	no?	NO!	FRUSTRATED	YES!	yes?	no?	NO!

****

OVERALL, HOW WERE YOU FEELING?

	VERY	QUITE	SOME	NEITHER	SOME	QUITE	VERY	
HAPPY	0	•	.	-	.	•	0	UNHAPPY
WEAK	0	•	.	-	.	•	0	STRONG
ANGRY	0	•	.	-	.	•	0	FRIENDLY
ALERT	0	•	.	-	.	•	0	DROWSY
CHEERFUL	0	•	.	-	.	•	0	IRRITABLE
STRESSED	0	•	.	-	.	•	0	RELAXED
BORED	0	•	.	-	.	•	0	EXCITED
FAT	0	•	.	-	.	•	0	THIN
ATTRACTIVE	0	•	.	-	.	•	0	UGLY

****

WHO WERE YOU WITH (OR TALKING TO ON THE PHONE)? (Check all that apply)

( ) ALONE, OTHER PEOPLE NEARBY
( ) ALONE, NO ONE AROUND
( ) MOTHER
( ) FATHER
( ) SISTER(S)
( ) BROTHER(S)
( ) BOSS/COACH/SUPERVISOR
( ) COWORKER(S)
( ) ONE FRIEND- A BOY
( ) ONE FRIEND- A GIRL
( ) SEVERAL FRIENDS -BOYS
( ) SEVERAL FRIENDS - GIRLS
( ) SEVERAL FRIENDS -BOYS & GIRLS
( ) BOYFRIEND/GIRLFRIEND
( ) IN CLASS
( ) OTHERS: _____

WOULD YOU RATHER HAVE BEEN: ( )ALONE ( )WITH FRIENDS ( )WITH FAMILY

IF YOU WERE WITH PEOPLE, WERE THEY:

	VERY	QUITE	SOME	NEITHER	SOME	QUITE	VERY	
FRIENDLY	O	o	.	-	.	o	O	UNFRIENDLY
SERIOUS	O	o	.	-	.	o	O	JOKING

WHO WAS BEING THE LEADER? ( )YOU ( )SOMEONE ELSE ( )NOBODY

IF YOU WERE FEELING A LOT OF SOMETHING, WHY DID YOU FEEL THAT WAY?

I FELT: _____ BECAUSE: _____

_____

SINCE THE LAST BEEP:

DO YOU FEEL YOU ATE: ( )TOO MUCH ( )JUST ENOUGH ( )TOO LITTLE ( )NOTHING

IF YOU DRANK ANY ALCOHOL, HOW MANY AND WHAT DID YOU DRINK? NO. OF BEERS _____ NO OF CLASSES OF WINE ___ AMOUNT OF HARD LIQUOR ____

IF YOU USED ANY DRUGS, WHAT TYPE AND AMOUNT? _____

GREAT THOUGHTS, NASTY CRACKS, CARTOONS AND JOKES, EXCUSES...

REMEMBER TO DO YOUR EVENT SHEET AT THE END OF THE DAY!

The Eating Attitudes Test-26 (EAT-26)

1. I am terrified about being overweight.
2. I avoid eating when I am hungry.
3. I find myself preoccupied with food.
4. I have gone on eating binges where I feel that I may not be able to stop.
5. I cut my food into small pieces.
6. I am aware of the calorie content of foods that I eat.
7. I particularly avoid foods with high carbohydrate content.
8. I feel that others would prefer if I ate more.
9. I vomit after I have eaten.
10. I feel extremely guilty after eating.
11. I am preoccupied with a desire to be thinner.
12. I think about burning up calories when I exercise.
13. Other people think I am too thin.
14. I am preoccupied with the thought of having fat on my body.
15. I take longer than others to eat meals.
16. I avoid foods with sugar in them.
17. I eat diet foods.
18. I feel that food controls my life.
19. I display self-control around food.
20. I feel that others pressure me to eat.
21. I give too much time and thought to food.
22. I feel uncomfortable after eating sweets.
23. I engage in dieting behavior.
24. I like my stomach to be empty.
25. I enjoy trying new rich foods.
26. I have the impulse to vomit after meals.

Thesis Approval Sheet

The thesis, "The Longitudinal Effects of Perceptions of Pubertal Timing and Relationship with Parents on Eating Problems in Adolescent Girls", submitted by Amy Swarr has been read and approved by the following committee:

Dr. Maryse Richards, Associate Professor, Department of Psychology
Loyola University Chicago

Dr. Joseph Durlak, Professor and Director of Clinical Training, Department of Psychology
Loyola University Chicago

The final copies have been examined by the director of the thesis committee and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the committee with reference to content and form.

The thesis is therefore accepted in partial fulfillment of the requirements for the degree of master of arts.

4-19-93
Date

Director's Signature